

REMARKS

The office actions of December 22, 2003 and June 26, 2003 have been carefully reviewed and these amendments are responsive thereto. Reconsideration and allowance of the instant application are respectfully requested.

Applicants' representative wishes to thank the Examiner for his time during the Examiner's interview on February 23, 2004, during which the office action mailed December 22, 2003, which withdrew all of the claims as being directed to a non-elected invention, was discussed. During the interview, Applicants' representative and the Examiner discussed claim amendments that Applicants' representative proposed would put the claims in a form directed to the elected invention. The various amendments discussed by the Examiner and Applicants' representative are reflected in the amended claims herein.

The specification has been amended to correct minor editorial problems.

Claims 1-14, 25-31, 33-37 and 42 remain pending in this application. Claims 38-41 have been canceled without prejudice or disclaimer. Claims 1, 33, and 36-37 have been amended to more particularly point out and claim the invention.

Previously, in response to the office action mailed June 26, 2003, claims 15-24 were canceled without prejudice or disclaimer, claim 32 was withdrawn, and claims 33-42 were added. Claims 1-10 and 14 were amended to correct typographical errors and to better define the invention.

Support for these amendments can be found in the claims as originally filed and throughout the specification. No new matter has been added by these amendments. Applicants respectfully submit that the amended claims are all directed to the elected invention, namely a multi-functional fibrous monolith structure that includes an inner ceramic phase, an intermediate metal phase and an outer ceramic phase.

Drawings

The drawings were objected to as failing to comply with 37 CFR 1.84(p)(5) because reference numbers 34 and 36 shown in Figure 3 are not described in the specification.

Applicants respectfully submit that Figure 3 as originally filed in this application does not show reference numbers 34 and 36. In a telephone conference with the Examiner on September 26, 2003, the Examiner confirmed that the drawings in the application do not include these reference numbers. Reconsideration and withdrawal of this objection is respectfully requested.

Claim Rejections Under 35 USC § 103

Claims 1-6, 9-10, 13 and 31 stand rejected as being unpatentable over Yong (U.S. Patent No. 6,361,873). Applicants respectfully traverse this rejection.

Independent claim 1 as amended is directed to a multi-functional fibrous monolith structure that includes one or more multi-phase components. Amended claim 1 includes the limitation that the component phases are “arranged in a predetermined manner and at least one of the phases is effective for performing at least one non-structural function and at least one of the phases capable of bearing mechanical loads and stresses. Rejected claims 2-6, 9-10, 13 and 31 depend from claim 1.

Yong discloses composite constructions that comprise an ordered microstructure of multiple structural units. In contrast to what is now claimed, Yong teaches only that the composite constructions are designed to improve the fracture toughness and/or thermal properties of the composite while controlling and not substantially sacrificing desired properties of hardness and wear resistance. In some embodiments, Yong teaches that the composite constructions provide optimized wear and/or strength and/or toughness. Yong does not disclose, teach or suggest fibrous monolith structures that are capable of providing both structural and non-structural functions.

The Office Action notes that “[r]egarding claims 2-5, the intermediate metal phase of Young would have been just as capable of allowing for measurement of strain, temperature and damage propagation. The Office Action also states that, with respect to claims 9-10 and 13 and the limitation that the component be capable of measuring the different properties, “the structure of Young would be just as capable of making the claimed measurements. The Office Action does not allege that Yong somehow includes a teaching or suggestion that provides a motivation relating to use of a fibrous monolith structure for non-structural functions, such as measurements

of strain, temperature and damage propagation. Yong does not provide any such teaching or suggestion but, instead, simply recognizes that the composite constructions provide improved properties of fracture toughness as compared to conventional, non-composite materials. It would not have been obvious to one of ordinary skill in the art to modify the composite constructions of Yong in order to obtain the claimed multi-functional fibrous monolith structures. Accordingly, the present claims are not obvious in view of Yong.

Claim 8 stands rejected as being unpatentable over Yong in view of Sue (U.S. Patent No. 6,063,502). As set forth above, Yong does not disclose, teach or suggest multi-functional fibrous monolith structures as claimed. Sue does not provide any teachings to cure the deficiencies of Yong. Similar to Yong, Sue discloses composite constructions having oriented microstructures that have improved properties of fracture toughness when compared to conventional cermet materials. Sue does not disclose, teach or suggest fibrous monolith structures that are capable of providing both structural and non-structural functions. Thus, even if Yong and Sue were combined, their combination would not result in the claimed embodiments of the present invention.

Claims 11 and 12 stand rejected as being unpatentable over Yong in view of Popovic (U.S. Patent No. 5,645,781). As set forth above, Yong does not disclose teach or suggest multi-functional fibrous monolith structures as claimed. Popovic discloses methods for preparing fibrous monolithic ceramics from green monofilament ceramic fibers, where the fibrous monolithic ceramics have non-brittle fracture characteristics, which is valuable in applications such as high temperature structural applications. Popovic does not disclose, teach or suggest fibrous monolith structures that are capable of providing both structural and non-structural functions. Accordingly, Popovic does not provide any teachings to cure the deficiencies of Yong.

None of the cited documents, either alone or in combination, disclose, teach or suggest the subject matter claimed in claims 1-14, 25-31, 33-37 and 42, and the claims are not obvious.

Applicants note with appreciation that the Office Action mailed June 26, 2003 indicated that claims 7, 14 and 25-30 would be allowable if rewritten in independent form to include all

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limitations of the base claim and any intervening claims. Claims 33-37, which were added by the amendment of September 26, 2003, are directed to the subject matter of claims 25-30.

CONCLUSION

All rejections having been addressed, applicant respectfully submits that the instant application is in condition for allowance, and respectfully solicits prompt notification of the same.

The Commissioner is authorized to debit or credit our Deposit Account No. 19-0733 for any fees due in connection with the filing of this response.

Respectfully submitted,

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